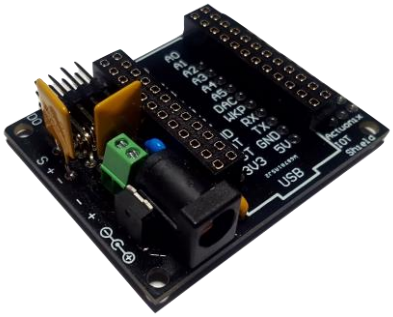


Control Accessories · IOT Servo Shield

Actuonix Motion Devices' unique line of Miniature Linear Actuators just became easier to control with the IOT Servo Shield. Plug in a Particle Photon Wi-Fi module and you're ready to control actuators using your cell phone (Android or IOS) or many of the Home Automation options offered by IFTTT.com. The IFTTT service supports Google Home and Amazon Alexa, giving you custom voice control options. The Actuonix IOT Servo Shield makes wiring a breeze.

Applications

- → **Home Automation**
- → **Agriculture**
- → **Robotics**
- → **Voice Control**

Resources

→ **Photon Datasheet:**

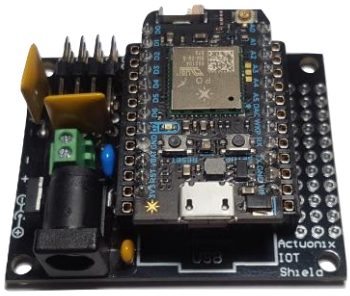
https://docs.particle.io/datasheets/photon-(wifi)/photon-datasheet/

→ **Photon Guide:**

https://docs.particle.io/getting-started/getting-started/

→ **IFTTT Details:**

https://docs.particle.io/getting-started/integrations/community-integrations/ifttt/



Photon Module installed

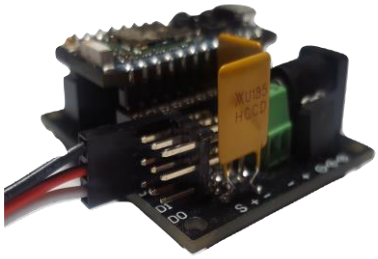
Control Specifications

Input Voltage	**6VDC or 12VDC (Match Actuator Voltage) ***
Operating Temperature	**-20°C to 60°C**
Frequency	**802.11b/g/n Wi-Fi**
Dimensions (Photon+Shield)	**40mm x 50mm x 15mm**
Required Services	**Particle.io Account**
Optional Services	**IFTTT.com Account**
Compatible Actuators	**Our models ending in -I, -R, or -P with an LAC**

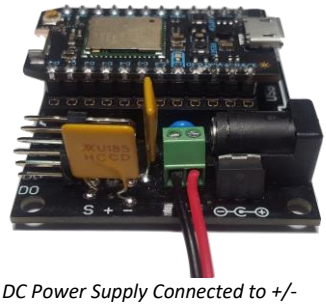
**Sum the stall currents of the connected actuators to determine maximum current draw.*

Wiring

The Actuonix Servo Shield makes the Photon easy to install and operate. Plug the Particle Photon into the IOT Servo Shield. Align the Photon with the outline on the Shield. Use the two inner pin headers (the external rows give you access to the other Photon pins). Connect 6V or 12V to the + screw terminal, and Ground to the - screw terminal (match the actuator voltage). Connect up to 4 actuators to the servo headers (black wire facing up). Do not mix actuators of differing voltages. Only connect one power supply (the barrel socket can be used if your supply has a compatible barrel plug).



-R Type Actuator Connected to D3 Output



DC Power Supply Connected to +/-

The small proto-board area can be used to prototype additional circuits (Photocell, temperature sensor, buttons, etc). The Photon comes preloaded with "Tinker" firmware. This allows you to control 4 servos without any changes to the Photon code. Sign in to Particle's development website, to customize the Photon code for more advanced projects.

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Wi-Fi Setup and Smart Phone Apps

Either (Web):

1) Follow the instructions in the quick-start section here: https://docs.particle.io/quickstart/photon/
2) Your device should now show up in your Particle account's dashboard
3) You should now be able to control the connected actuators using the default "analogWrite". In the arguments section, type the pin name to which your actuator is connected and then a number between 120(Full Retract) and 250(Full Extend) and then click "Call".

Or (Mobile App):

1) Download and install the Photon app on your phone. Search for "Particle" in the IOS, Android or Windows App store. This App is free to use, but does require you to create a Particle account.
2) Wire up your Photon, power supply and actuator(s) as described above.
3) Open the app and power on the Photon.
4) Follow the app's instructions to complete connection.
5) That's it, you should now be able to control the connected actuators using the app control bars. Tap the pin you have connected, select "Analog Output". Control Range is between 120(Full Retract) and 250(Full Extend).

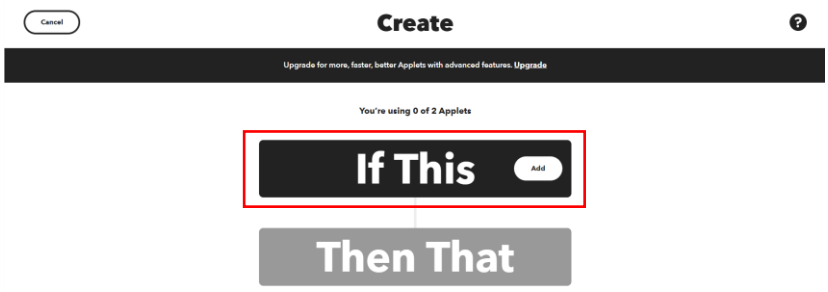
If your phone supports the Amazon Alexa or Google Assistant Apps, you can setup cell phone voice control. Refer to the corresponding setup instructions below.

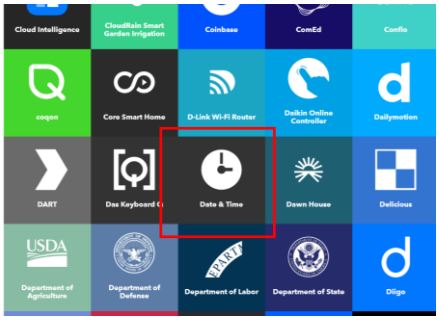
IFTTT (Requires PRO version)

1) Follow the above Wi-Fi Setup instructions to get the Photon connected to your home network. You only have to do this once; the Photon will remember your Wi-Fi login credentials next time you power it up.

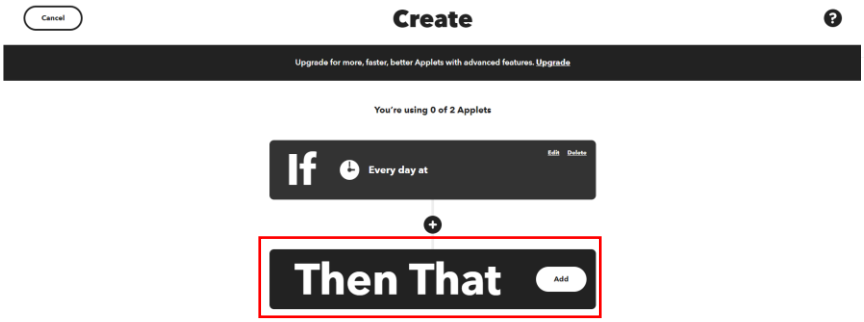
2) Go to www.ifttt.com and set up an account if you do not already have one. Go back to the home page when you have finished setting up an account.
3)
4) Click on My Applets->New Applet

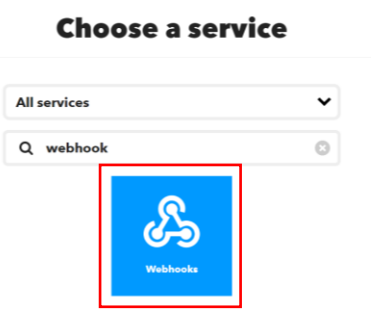
5) Click "If This", and select the trigger you want to use (time, Amazon Alexa, Google Home, etc.). We are using "Date & Time" for this example.





6) Click "Then that", and search for "Webhook". Select the result.





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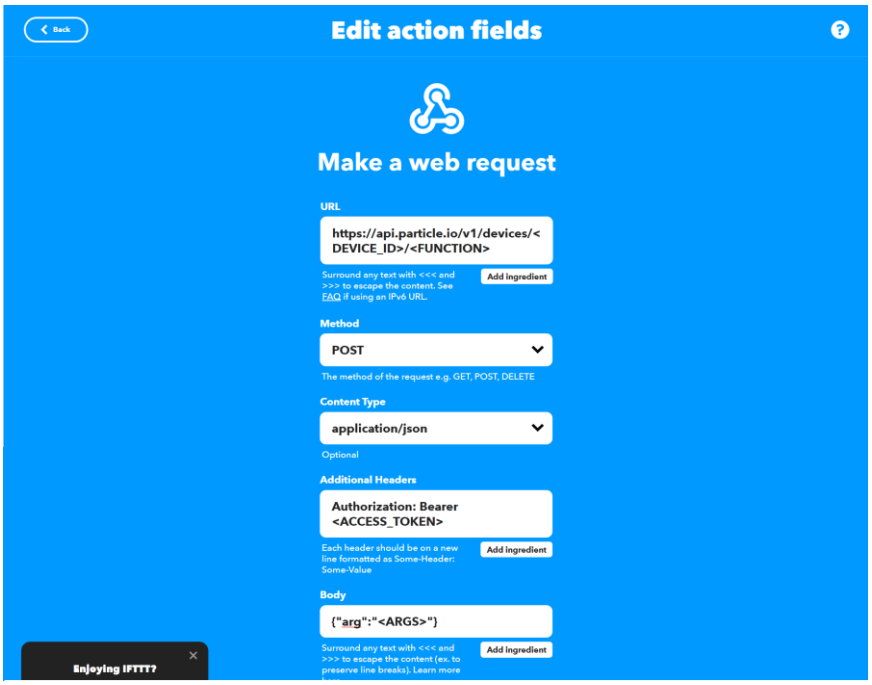
7) Select the only option "Make a web request". Enter the settings shown below, replacing <DEVICE_ID> in the URL with your device's ID, as shown on the Particle device dashboard. Also replace <FUNCTION> in the URL with the function of your choice loaded onto your Photon. Finally, replace <ACCESS_TOKEN> in the "Additional Headers" section with a valid Particle access token* and <ARGS> in the "Body" section with a valid argument string for your chosen function.

For example, if you have the actuator white wire connected to pin D1 and you want to fully extend the actuator, use "analogWrite" as the function and "D1 250" as the args.



*Visit https://docs.particle.io/reference/cloud-apis/access-tokens/ for help creating a valid access token

8) Click Finish and wait a few seconds then try out your trigger.

9) You can repeat these steps if you want another trigger to retract the actuator, use "D1 120" as the args.

Note: *You can enter any value between 120 and 250. The actuator position is proportional. For example, to extend 50%, use 185.*

Troubleshooting:

If you have trouble setting up the Photon, hold down the setup button on the photon until the LED flashes green rapidly. Try finding the photon in the phone app again.

Common LED colours:

- Rapid Flashing **Green** (Looking for Internet)
- Slow Flashing **Cyan** (Connected, ready for App/IFTTT control)

More information LED codes available at https://docs.particle.io/troubleshooting/led/photon/

Further Support:

Contact Actuonix support for questions relating to our servo shield or actuators.
Contact Particle.io for Photon and Particle account specific issues.
Contact IFTTT.com for IFTTT service specific issues.

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